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EXAMINER
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* OLIVIER LARCHER, PHILIPPE MOISSONNIER,  
and EMMANUEL ROHART

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Appeal 2010-006649  
Application 10/589,209  
Technology Center 1700

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Before CHARLES F. WARREN, TERRY J. OWENS, and LINDA M.  
GAUDETTE, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL  
STATEMENT OF THE CASE

The Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 20-31 and 33-45, which are all of the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

*The Invention*

The Appellants claim a composition which, the Appellants indicate, is useful as a catalyst for treating internal combustion engine exhaust gas

(Spec. 1:6-14), and claim a method for making the composition. Claim 20 is illustrative:

20. A composition consisting essentially of zirconium oxide and at least one additive selected from oxides of praseodymium, lanthanum and neodymium, the composition having a specific surface area of at least 29 m<sup>2</sup>/g after calcination for 10 hours at 1000°C.

### *The References*

#### *References relied upon by the Examiner*

Murakami	5,063,192	Nov. 5, 1991
Aozasa	6,171,572 B1	Jan. 9, 2001
Yamamoto	2003/0224931 A1	Dec. 4, 2003

#### *Reference relied upon by the Appellants*

Akkarat Wongkaew, *Effect of Cerium Oxide and Zirconium Oxide to Activity of Catalysts*, 35 *Chiang Mai J. Sci.* 156-62 (2008).

### *The Rejections*

The claims stand rejected as follows: claims 20-30, 39-41, 44 and 45 under 35 U.S.C. § 102(b) or, in the alternative, under 35 U.S.C. § 103 over Aozasa, claims 31, 36-38 and 42 under 35 U.S.C. § 103 over Aozasa, claims 33-35 under 35 U.S.C. § 103 over Aozasa in view of Yamamoto, and claim 43 under 35 U.S.C. § 103 over Aozasa in view of Murakami.

### OPINION

We affirm the rejections.

The Appellants argue claims 20-30, 39-41, 44 and 45 as a group (Br. 4-7). We therefore limit our discussion to one claim in that group, i.e., claim 20. All of the other claims within that group stand or fall with claim 20. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007). Although additional references are applied in the rejections of claims 31, 33-38, 42 and 43, the

Appellants do not provide a substantive argument as to the separate patentability of those claims. Instead, the Appellants argue that the additional references do not remedy the deficiency in Aozasa as applied to claims 20-30, 39-41, 44 and 45 (Br. 8-9). Accordingly, we address only claim 20.

Aozasa discloses “a zirconium-cerium composite oxide which has excellent heat resistance suitable for a co-catalyst for exhaust gas purification, and which is capable of maintaining a large specific surface area even in its use under high temperature environment” (col. 2, ll. 46-50). Aozasa discloses that “it is the cerium oxide that exhibits oxygen absorbing and desorbing capability, whereas the zirconium oxide functions to enhance the heat resistance of the cerium oxide to allow it to exhibit the oxygen absorbing and desorbing capability over a wide temperature range” (col. 4, ll. 15-19). The weight ratio of zirconium oxide to cerium oxide can be 95:5, and the composite oxide can contain metals including lanthanum, praseodymium, neodymium and mixtures thereof (col. 3, ll. 26-33). The composite oxide “is capable of maintaining the specific surface area of not smaller than 20 m<sup>2</sup>/g, preferably 20 to 30 m<sup>2</sup>/g, even after heating at 1100° C. for 6 hours” (col. 4, ll. 48-50).

The Appellants argue that their “consisting essentially of” transition term excludes Aozasa’s cerium oxide (Br. 6). The Appellants argue, in reliance upon Aozasa’s disclosure that the cerium oxide provides oxygen absorbing and desorbing capability (col. 1, ll. 20-28), that “the evidence is

irrefutable that the presence of cerium oxide materially alters the fundamental catalytic properties of such compositions” (Br. 6).<sup>1</sup>

The term “consisting essentially of” includes not only what is specifically recited in the Appellants’ claim, but also any other materials which do not materially affect the basic and novel characteristics of the claimed invention. *See In re Herz*, 537 F.2d 549, 551-52 (CCPA 1976); *In re De Lajarte*, 337 F.2d 870, 873-74 (CCPA 1964); *In re Janakirama-Rao*, 317 F.2d 951, 954 (CCPA 1963).

The Appellants’ Specification states that “the composition of the invention is based on zirconium oxide and is characterized in that it further comprises at least one additive selected from the oxides of praseodymium, lanthanum and neodymium, and in that it has a specific surface area of at least 29 m<sup>2</sup>/g after calcination for 10 hours at 1000°C” (Spec. 1:31-36). Thus, the basic and novel characteristics of the Appellants’ composition appear to be the presence of at least one additive selected from the oxides of praseodymium, lanthanum and neodymium and the specific surface area of at least 29 m<sup>2</sup>/g after calcination for 10 hours at 1000 °C. Aozasa does not disclose that the cerium oxide, which functions to provide oxygen absorbing and desorbing capability (col. 4, ll. 15-16), materially affects the specific surface area after calcination, and the Appellants have not provided evidence that it does so. Hence, the Appellants’ “consisting essentially of” transition term does not appear to exclude Aozasa’s cerium oxide.

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<sup>1</sup> The Appellants argue, in reliance upon Wongkaew (p. 157, § 1), that “[a]s well known to those familiar with the art, the presence of cerium oxide in such compositions provides extra oxygen from the lattice thereof and increases activity of the catalyst at relatively low temperatures” (Br. 5).

The Appellants argue that “Aozasa also does not teach the claimed specific surface area after ten hours of calcination at 1000°C” (Br. 7).

Aozasa discloses that the specific surface area of the composite oxide is not smaller than 20 m<sup>2</sup>/g after heating at 1100 °C for 6 hours (col. 4, ll. 46-50). Aozasa does not disclose the specific surface area of the composite oxide after heating at 1000 °C for 10 hours. However, because the specific surface area of Aozasa’s composite oxide after heating at 1100 °C for 6 hours (at least 20 m<sup>2</sup>/g) is greater than the specific surface area of the Appellants’ composition after heating at the same temperature for only 4 hours (19 m<sup>2</sup>/g, Spec. 18:Table 2), it appears that likewise, after heating at 1000 °C for 10 hours the specific surface area of Aozasa’s composite oxide would be greater than that of the Appellants’ composition. “[W]hen the PTO shows sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990). As indicated above, with respect to specific surface area after calcination Aozasa’s composite oxide appears to actually be better than the Appellants’ composition. The Appellants have not provided the required evidence of patentable superiority of their composition.

#### DECISION/ORDER

The rejections of claims 20-30, 39-41, 44 and 45 under 35 U.S.C. §§ 102(b) and 103 over Aozasa, claims 31, 36-38 and 42 under 35 U.S.C. § 103 over Aozasa, claims 33-35 under 35 U.S.C. § 103 over Aozasa in view of Yamamoto, and claim 43 under 35 U.S.C. § 103 over Aozasa in view of Murakami are affirmed.

It is ordered that the Examiner’s decision is affirmed.

Appeal 2010-006649  
Application 10/589,209

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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